Amendments to the Specification

Please replace paragraph [0009], with the following paragraph:

[0009] An electric actuator includes a first plate and a substantially parallel second plate. A linkage system couples the first plate to the second plate such that moving the linkage system toward an over-center position causes the second plate to move away from the first plate. An electric motor is coupled to the linkage system to move the linkage system toward the over-center position. A force transducer is coupled to the actuator to produce a force signal responsive to a force produced by the actuator. A control system is coupled to the electric motor and the force transducer to provide a control signal to the electric motor to move the linkage system to a position that is determined by the control system in response to the force signal in a previous movement of the linkage system.

Please add the following paragraph after paragraph [0018]:

[0018.1] FIG. 10 a flowchart of a method for producing a heat seal in plastic films that may be used by an embodiment of the controller.

Please replace paragraph [0023], with the following paragraph:

[0023] The actuator further includes a force transducer, such a load cell 125, that produces a force signal responsive to the force produced by the actuator. A control system 21 (Fig. 1) receives the signal from

the force transducer 125 and provides a control signal to the electric motor 124. The electric motor 124 may be a servo motor or a stepper motor that is capable of going to a particular position in response to the signal provided by the control system. A position sensor such as an encoder on the screw may provide a position signal to the controller. The control system 21 determines the stopping position for the electric motor 124 at ~~the maximum~~ an actuator displacement based on the force signal(s) produced by the force transducer 125 in one or more previous movements of the linkage system. Thus, the control system 21 is able to accurately control the force produced by the actuator ~~at its maximum extent~~ by controlling the stopping position of the electric motor 124 and thus the actuator displacement ~~at the maximum extent~~. The high mechanical advantage and high ratio between motor rotation and actuator displacement as the actuator approaches the desired ~~maximum~~ displacement where the linkage system is near the over-center position, allows the control system to provide good accuracy and repeatability in the forces produced by the actuator.

Please replace paragraphs [0028] through [0031], with the following paragraphs:

[0028] It will be appreciated that the ~~maximum~~ working displacement of the actuator is desirably close to, although not at, the over-center position of the linkage system to maximize the force being generated. This also maximizes the ratio between motor rotations and actuator

displacement which increases the accuracy of the control of actuator displacement at the working displacement ~~its maximum extent~~ and hence the accuracy of the force control. It may be desirable to provide an adjustment for the actuator position relative to the platen 119 so that the ~~maximum~~ working displacement required from the actuator can be adjusted to occur near the over-center position.

[0029] It will be appreciated that it is desirable that the structure including the actuator provides a certain amount of compliance so that the force created by the actuator increases at a controlled rate when the heat seal die is in contact with the platen. It will be appreciated that the overcenter (toggle) device generates force when the heat seal die and the platen are in contact and natural compliance within the device members may allow for continued motion of the actuator and a controlled increase in force ~~pressure~~ past the point where the heat seal die first makes contact with the platen. The platen 119 may include a resilient surface, such as a rubber pad which provides additional compliance. Other parts of the structure may allow resilient deformation to provide compliance.

[0030] ~~In one embodiment,~~Using the force signal ~~may be used by the control system 21~~from a previous actuator displacement cycle to determine the position for the following actuator displacement cycle may reduce~~s~~ the speed required from the control system to respond to the force signal. In many applications the cycle-to-cycle changes in

force versus actuator displacement will be small and adjustment of the actuator displacement based on the force generated in the preceding cycle will be sufficient to control the force generated by the actuator. It has been found that the force can be controlled to within at least one percent of the target force using this mechanism.

[0031] In another embodiment, the controller 21 may be provided with predetermined values for force as a function of nominal motor position. The controller may find a first nominal motor position that corresponds to the measured force and a second nominal position that corresponds to the desired force. The controller may determine a corrected motor position to achieve the desired force by using ~~use~~ the difference between the first and second nominal positions ~~to correct the~~ as a motor position correction in a subsequent movement of the linkage system.

Please replace paragraphs [0042] and [0043], with the following paragraphs:

[0042] The controller 21 may determine a second end position for a subsequent movement of the linkage system as a correction to the first end position in a previous movement of the linkage system responsive to a difference between a desired force and the force generated by the actuator at the end position. Figure 9 is a flowchart of a method the controller 21 may use to determine the second position. The controller

21 may be provided with predetermined values for force as a function of motor position.

[0043] The controller 21 may use the predetermined force-position function to compute a first nominal motor position that corresponds to the force represented by the second signal 410 and a second nominal motor position that corresponds to a desired force 412. The positions computed are nominal in that they are positions based on the predetermined force-position function rather than the positions that may actually be required to produce the forces. The controller 21 may determine the second end position for a subsequent movement of the linkage system as a correction to the first end position <u>in a previous movement of the linkage system</u> based on a difference between the first and second nominal motor positions 414. The difference between the first and second nominal motor positions provides a good estimate of the position correction required to produce the desired force. Applying the position correction to the actual position that produced the measured force provides a good estimate for an actual position that will produce the desired force.

Please replace paragraph [0047], with the following paragraph:

[0047] The controller 21 receives a second signal from a force transducer 25 coupled to the actuator 22 when the electric motor 24 is at the first end position. The second signal is ~~responsive to~~ <u>representative of</u> a force <u>then being</u> produced by the actuator. A force

value as measured by the second signal is stored by the controller 504. The controller stores a number of force values, each force value stored corresponding to the force produced by the actuator for a movement of the heat seal die. The controller maintains a count of the cycles 506. After holding the heat seal die against the plastic films for a suitable period of time T 508, the controller retracts the heat seal die to the starting position, distance 0 510. The webs of plastic material 11, 12 may be advanced to begin another cycle.

Please replace paragraph [0049], with the following paragraph:

[0049] The controller may find a first nominal end position using the representative function and the representative force value. The controller may then find a second nominal end position using the representative function and the desired force value. A correction value may then be determined as the difference between the first and second nominal values. The correction value may be applied to the end position D to compute the corrected distance D. ~~The~~ In one embodiment, the controller ~~may~~ does not correct the end position if the correction value is less than a predetermined value.

Please replace the Abstract with the paragraph on the following page: